

Large-array Far-infrared Microwave Kinetic Inductance Detector Demonstration

Completed Technology Project (2011 - 2012)



Project Introduction

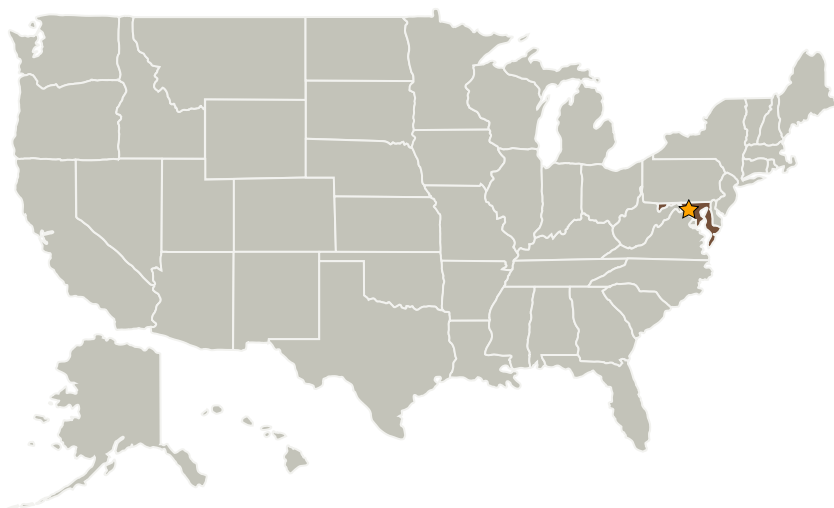
Design, developed an demonstrate an instrument-grade 20x20 pixel array of Microwave Kinetic Inductance Detector (MKID) for far-infrared astronomy applications. Successful development will lead to the deployment of these arrays on ground-based/ balloon-borne telescopes.

Low return loss package design Improve amplifier mismatch at the package and chip interface Multi-branch MKID design to increase readout frequencies Silicon membrane of 1.45 or 5 micron-thick strong enough to support membrane size of 18x18 mm² Automated software for large array measurement and computation.

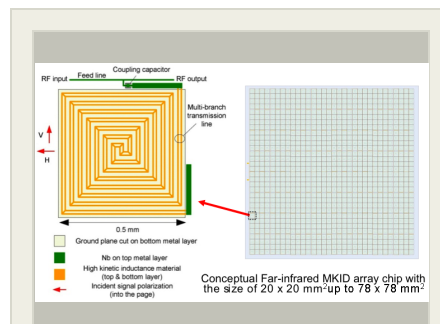
Anticipated Benefits

N/A

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland



Project Image Large-array Far-infrared Microwave Kinetic Inductance Detector Demonstration

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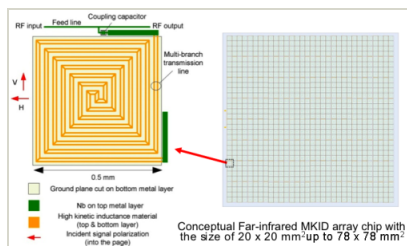
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Primary U.S. Work Locations

Maryland

Images



5136.png

Project Image Large-array Far-infrared Microwave Kinetic Inductance Detector Demonstration (<https://techport.nasa.gov/image/1292>)

Project Website:

<http://aetd.gsfc.nasa.gov/>

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Manager:

Terence A Doiron

Principal Investigator:

Kongpop U-yen

Co-Investigators:

Edward J Wollack

Ari D Brown

Emily M Barrentine

Thomas R Stevenson

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Technology Maturity (TRL)

Start: **3**
Current: **3**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves